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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,809	04/10/2001	Robert Terneu	31642-167413	8396

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EXAMINER

MARKHAM, WESLEY D

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 10/17/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,809

Applicant(s)

TERNEU ET AL.

Examiner

Wesley D Markham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-93 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 08/660,755.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of applicant's amendment C, filed as paper #10 on 7/29/2002, in which the specification of the instant application was amended, Claims 29, 37, 38, 53, 55, and 62 were amended, and Claims 77 – 93 were added. Claims 29 – 93 are currently pending in U.S. Application Serial No. 09/828,809, and an Office Action on the merits follows.

Information Disclosure Statement

2. Acknowledgement is made of the IDS filed by the applicant as paper #11 on 7/29/2002. The references listed thereon have been considered as indicated on the attached copy of the PTO-1449 form.

Priority

3. Acknowledgement is made of the applicant's correction of the continuity / priority data of the instant application. As such, the objection to the continuity data / specification set forth in paragraph 1 of the previous Office Action is withdrawn.

Specification

4. The objection to the specification, set forth in paragraph 2 of the previous Office Action, is withdrawn in light of the applicant's IDS and corresponding remarks filed on 7/29/2002 in which the correct technical definition of a "lehr" was evidenced.

Claim Objections

5. The objections to Claims 37, 38, 55, and 62, set forth in paragraphs 3 – 4 of the previous Office Action, are withdrawn in light of applicant's amendment C.
6. Claims 84 and 92 are objected to because of the following informalities: The aforementioned claims use the term "LT" to denote luminous transmittance. However, the other claims and the specification of the instant application refer to luminous transmittance as "TL". Therefore, the applicant is suggested to amend the term "LT" in Claims 84 and 92 to "TL" in order to render the claims more clear and to correspond with the rest of the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. The rejection of Claims 36 and 60 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, set forth in paragraphs 8 – 9 of the previous Office Action, is withdrawn in light of the applicant's IDS and corresponding remarks filed on 7/29/2002 in which the term "low-emissivity" was shown to have an art-accepted meaning.

9. Claims 82 and 90 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
10. Specifically, Claims 82 and 90 require that the glazing panel have a "dominant wavelength" in the range of 470 nm to 490 nm. It is unclear what the applicant intends by this limitation. Specifically, what is the "dominant wavelength" of a glazing panel? Is it a wavelength of light reflected by the panel? Is it a wavelength of light transmitted by the panel? As such, the scope of Claims 82 and 90 is vague and indefinite.

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 29 – 52, 61, and 69 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (see paragraph 6 of the previous Office Action). Specifically, the limitations that the glazing panel has a luminous transmittance (TL) of "less than 70%" and "less than 69%" constitute "new matter" under 35 U.S.C. 112, first paragraph. In the response filed on 7/29/2002, the applicant points to examples in the specification of glazing

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panels having TL values of 68.8% and 70.2% (see paragraph 4 of the response).

However, these examples do not constitute an original disclosure of TL values of "less than 70%" and "less than 69%" as recited in the claims. For example, the applicant's specification as filed does have support for TL values of 68.8% and 70.2%, but does not have support for TL values of 67%, 66%, etc. which are within the claimed range of TL values. As such, the limitations of TL values of "less than 70%" and "less than 69%" constitute "new matter". Regarding Claims 49 and 73, please note that, in light of the applicant's remarks filed on 7/29/2002, the 35 U.S.C. 112, first paragraph rejection of the claims based on the term "monolithic glazing panel" is withdrawn because the specification as filed has support for a "single glazed assembly", which is equivalent to a monolithic glazing panel.

13. Newly added Claims 77 – 93 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, new independent Claim 77 (from which Claims 78 – 84 depend) requires (1) depositing at least one intermediate coating layer on a glass ribbon substrate during formation of the glass ribbon whilst it is still hot, (2) forming a tin/antimony oxide coating layer on the intermediate coating layer during formation of the glass ribbon whilst it is still hot, and (3) depositing at least one additional coating layer comprised of fluorine-doped tin oxide on the tin/antimony oxide coating layer. Further, the tin/antimony oxide coating layer must have a thickness between 100 and 470 nm

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and an Sb/Sn molar ratio of at least 0.03 and less than 0.15. The glazing panel must have a solar factor (FS) of less than 60%, a luminous transmittance of between 40% and 65%, and a luminous reflectance of less than 11%. New independent Claim 85 (from which Claims 86 – 93 depend) has the same limitations as independent Claim 77 except that it does not require a luminous reflectance of less than 11%. The applicant's specification as originally filed does not have support for all of the aforementioned claim limitations in the combination(s) required by Claims 77 – 93. For example, while the application as originally filed does have support for (1) an intermediate layer below a tin/antimony oxide coating layer or (2) a fluorine-doped tin oxide layer on the tin/antimony oxide coating layer individually, the application as filed does not have support for both an intermediate layer below a tin/antimony oxide coating layer and a fluorine-doped tin oxide layer on the tin/antimony oxide in a single embodiment as required by the newly added claims. Since this is the case, the specification as originally filed clearly does not have support for the claimed characteristics (i.e., solar factor, luminous transmittance, and luminous reflectance) of a glazing panel having all of the aforementioned layers (i.e., the intermediate layer, the tin/antimony oxide coating layer, and the fluorine-doped tin oxide layer) as required by Claims 77 – 93. Therefore, Claims 77 – 93 constitute "new matter" under 35 U.S.C. 112, first paragraph.

14. Newly added Claims 77 – 93 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way

as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

15. Specifically, new independent Claim 77 (from which Claims 78 – 84 depend) requires (1) depositing at least one intermediate coating layer on a glass ribbon substrate during formation of the glass ribbon whilst it is still hot, (2) forming a tin/antimony oxide coating layer on the intermediate coating layer during formation of the glass ribbon whilst it is still hot, and (3) depositing at least one additional coating layer comprised of fluorine-doped tin oxide on the tin/antimony oxide coating layer. Further, the tin/antimony oxide coating layer must have a thickness between 100 and 470 nm and an Sb/Sn molar ratio of at least 0.03 and less than 0.15. The glazing panel must have a solar factor (FS) of less than 60%, a luminous transmittance of between 40% and 65%, and a luminous reflectance of less than 11%. New independent Claim 85 (from which Claims 86 – 93 depend) has the same limitations as independent Claim 77 except that it does not require a luminous reflectance of less than 11%. One skilled in the art of coating glass would not be able to use the applicant's claimed invention because there is no example or embodiment shown or discussed in the specification of the instant application that pertains to coating glass with at least one intermediate coating layer, a tin/antimony oxide coating layer on the intermediate coating layer, and at least one additional coating layer comprised of fluorine-doped tin oxide on the tin/antimony oxide coating layer (i.e., 3 different layers). As such, one of skilled in the art would not know how to obtain the claimed characteristics (solar factor, luminous

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transmittance, and luminous reflectance) of the coated, 3-or-more layer, glazing panel. For example, how does the thickness of the intermediate layer and/or the fluorine-doped tin oxide layer influence the solar factor, luminous transmittance, and luminous reflectance of the glazing panel? How does one choose an appropriate layer thickness value in combination with the claimed tin/antimony oxide coating layer thickness? Does the amount of fluorine in the fluorine-doped tin oxide layer influence the solar factor, luminous transmittance, and luminous reflectance of the glazing panel? If so, how is this balanced into the equation when forming the claimed glazing panel?

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order

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for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. The rejection of Claims 29 – 76 under 35 U.S.C. 103(a) as being unpatentable over various combinations of Kavka, Kalbskopf et al., Terneu et al.(1), Porter, Terneu et al.(2), Terneu et al.(3), Beaufays et al., and Toyonaga et al., set forth in paragraphs 12 – 25 of the previous Office Action, is withdrawn in light of applicant's amendment C. Specifically, amended independent Claims 29 (from which Claims 30 – 52 depend) and 53 (from which Claims 54 – 76 depend) now require that, based on at least the Sb/Sn molar ratio and the thickness of the tin/antimony oxide coating layer, the glazing panel has a solar factor (FS) of less than 70%, which is not explicitly taught by the combination(s) of references cited by the examiner in the previous Office Action.

19. Claims 29 – 31, 37 – 48, 50, 53 – 55, 61 – 72, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavka (CS 239788 B1) in view of Kalbskopf et al. (USPN 4,294,868), in further view of Terneu et al.(3) (USPN 4,900,634) and Buffat et al. (USPN 5,657,149) for the reasons set forth in paragraphs 13 – 14 and 20 – 21 of the previous Office Action and below.

20. Specifically, the combination of Kavka and Kalbskopf et al. teaches all the limitations of Claims 29 – 31, 37 – 40, 43 – 47, 50, 53 – 55, 61 – 64, 67 – 71, and 74 as set forth in paragraphs 13 – 14 of the previous Office Action, except for

method wherein, based on at least the Sb/Sn molar ratio and the thickness of the tin/antimony oxide coating layer, the glazing panel has a solar factor (FS) of less than 70%. Specifically, Kavka is silent as to the FS of the glazing panel. However, please note that Kavka does teach Sb/Sn molar ratios within the applicant's claimed range (see paragraph 13 of the previous Office Action). In addition Kavka notes that the coating deposited in his invention has a high reflectivity (60 – 70%) of radiant energy in the wavelength region of 5 – 12 μm (Example 3). This teaching at least suggests a low FS value. Further, it would have been obvious to one of ordinary skill in the art to deposit the tin/antimony oxide coating of Kavka to a thickness as claimed by the applicant in Claims 41, 42, 65, and 66 (i.e., 100 to 500 nm, preferably 250 to 450 nm) in light of Terneu et al.(3) for the reasons set forth in paragraph 20 of the previous Office Action. In addition, Buffat et al. teach that, in general, the thickness of coatings on glass influences the solar factor of the coated glass (i.e., larger coating thickness values lead to smaller solar factors) (Col.7, lines 33 – 49). Therefore, the combination of Kavka, Kalbskopf et al., Terneu et al.(3), and Buffat et al. teaches all the limitations of the applicant's claims, including the applicant's claimed Sb/Sn molar ratio and tin/antimony oxide layer thickness. It appears from the applicant's claims that the solar factor of the claimed coated glazing panel is determined by the Sb/Sn molar ratio in the coating and the tin/antimony oxide layer thickness. Since the combination of Kavka, Kalbskopf et al., Terneu et al.(3), and Buffat et al. teaches the claimed Sb/Sn molar ratio in the coating and the tin/antimony oxide layer thickness (as well as all the other process

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limitations of the claims), the glazing panel produced by the prior art combination would have inherently had a solar factor of less than 70% as claimed by the applicant. In the alternative, Buffat et al. also teach that a low solar factor is desired for architectural glazing panes so that the panes contribute as little as possible to the rise in temperature inside a building, thereby reducing the cost of air conditioning (Col.1, lines 5 – 50). Further, Buffat et al. teach that the solar factor of a glazing pane is a result / effective variable that must be balanced with the desired light transmission of the pane in order to optimize factors such as (1) how much light is allowed to pass through the pane and (2) the cost of air conditioning (Col.1, lines 5 – 50). Therefore, it would have been obvious to one of ordinary skill in the art to optimize, especially minimize, the solar factor of the glazing pane of Kavka as a result / effective variable through routine experimentation in order to optimize / balance factors such as how much light is allowed to pass through the pane and the cost of air conditioning. Please note that the aforementioned combination of references also suggests using a colored sheet of glass as a substrate (as required by applicant's Claims 48 and 72) as set forth in paragraph 21 of the previous Office Action.

21. Claims 32 – 34 and 56 – 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavka (CS 239788 B1) in view of Kalbskopf et al. (USPN 4,294,868), in further view of Terneu et al.(3) (USPN 4,900,634) and Buffat et al. (USPN 5,657,149), and in further view of either Terneu et al.(1) (GB 2 234 264 B) or

Porter (EP 0 174 727 A1) for the reasons set forth in paragraph 16 of previous Office Action and paragraph 20 above.

22. Claims 35, 36, 59, and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavka (CS 239788 B1) in view of Kalbskopf et al. (USPN 4,294,868), in further view of Terneu et al.(3) (USPN 4,900,634) and Buffat et al. (USPN 5,657,149), and in further view of Terneu et al.(2) (GB 2 274 115 A) for the reasons set forth in paragraph 18 of previous Office Action and paragraph 20 above.
23. Claims 49 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavka (CS 239788 B1) in view of Kalbskopf et al. (USPN 4,294,868), in further view of Terneu et al.(3) (USPN 4,900,634) and Buffat et al. (USPN 5,657,149), and in further view of Beaufays et al. (USPN 5,573,839) for the reasons set forth in paragraph 23 of previous Office Action and paragraph 20 above.
24. Claims 51, 52, 75, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavka (CS 239788 B1) in view of Kalbskopf et al. (USPN 4,294,868), in further view of Terneu et al.(3) (USPN 4,900,634) and Buffat et al. (USPN 5,657,149), and in further view of Toyonaga et al. (USPN 4,859,496) for the reasons set forth in paragraph 25 of previous Office Action and paragraph 20 above.

Response to Arguments

25. Applicant's arguments filed on 7/29/2002 have been fully considered but they are not persuasive. Specifically, the applicant's arguments are moot in view of the new grounds of rejection presented above.

Conclusion

26. As pertinent prior art, please note that Terneu et al.(3) (USPN 4,900,634) teach that it was known in the art at the time of the applicant's invention to coat a ribbon of freshly formed glass while it is still hot so as to avoid reheating costs (Col.4, lines 8 – 12).
27. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
28. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the

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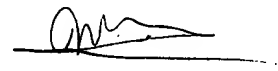
mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.
30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.
31. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



WDM
October 15, 2002

Wesley D Markham
Examiner
Art Unit 1762


MICHAEL BARR
PRIMARY EXAMINER